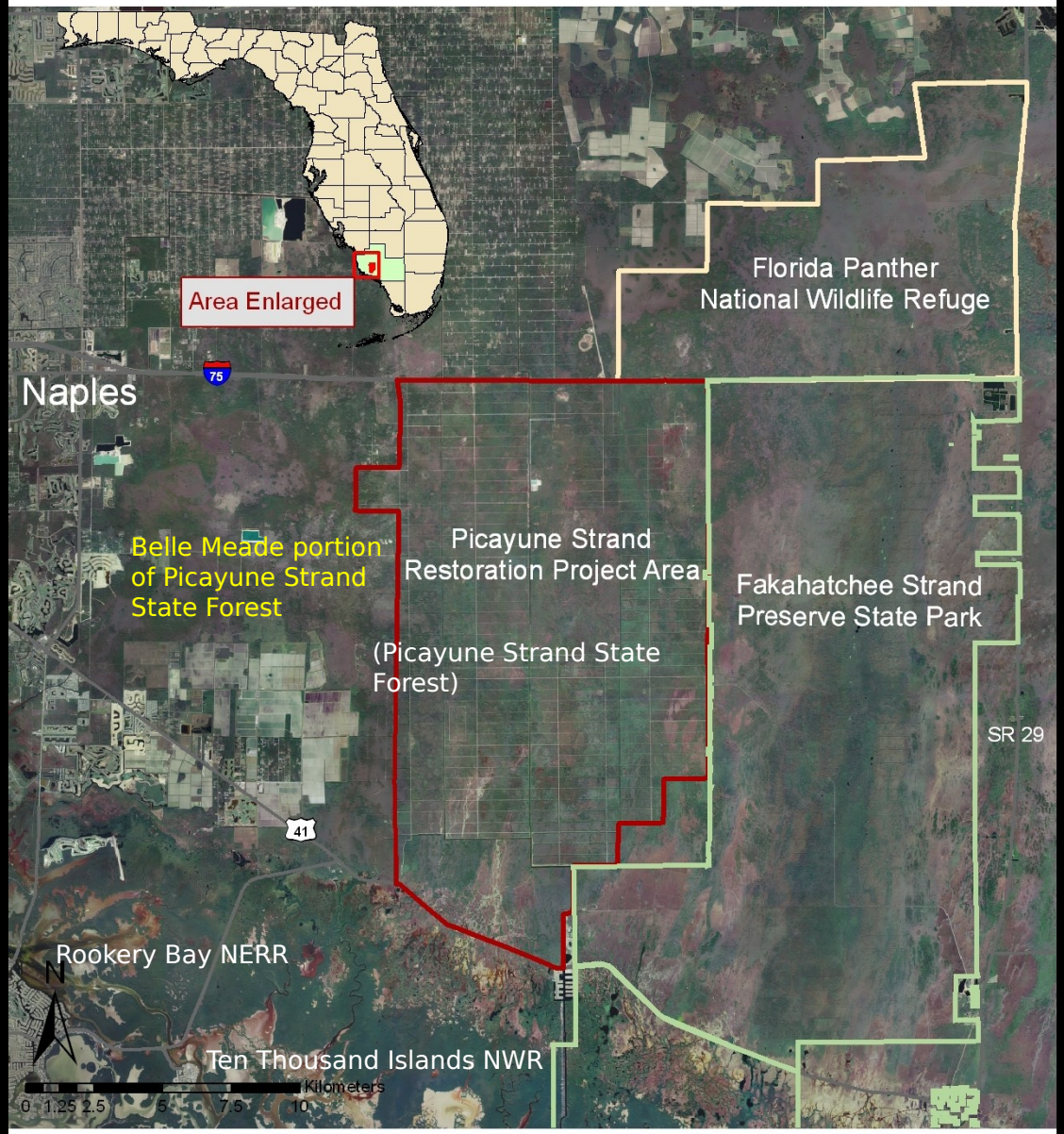
PICAYUNE STRAND RESTORATION PROJECT

LISTED SPECIES MONITORING

FLORIDA PANTHER

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR
NATIONAL WILDLIFE REFUGE SYSTEM
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
PROTECTION OF THE EVERGLADES SINCE 1949
USGS
science for a changing world
US Army Corps of Engineers



Picayune Strand Restoration Project (PSRP)

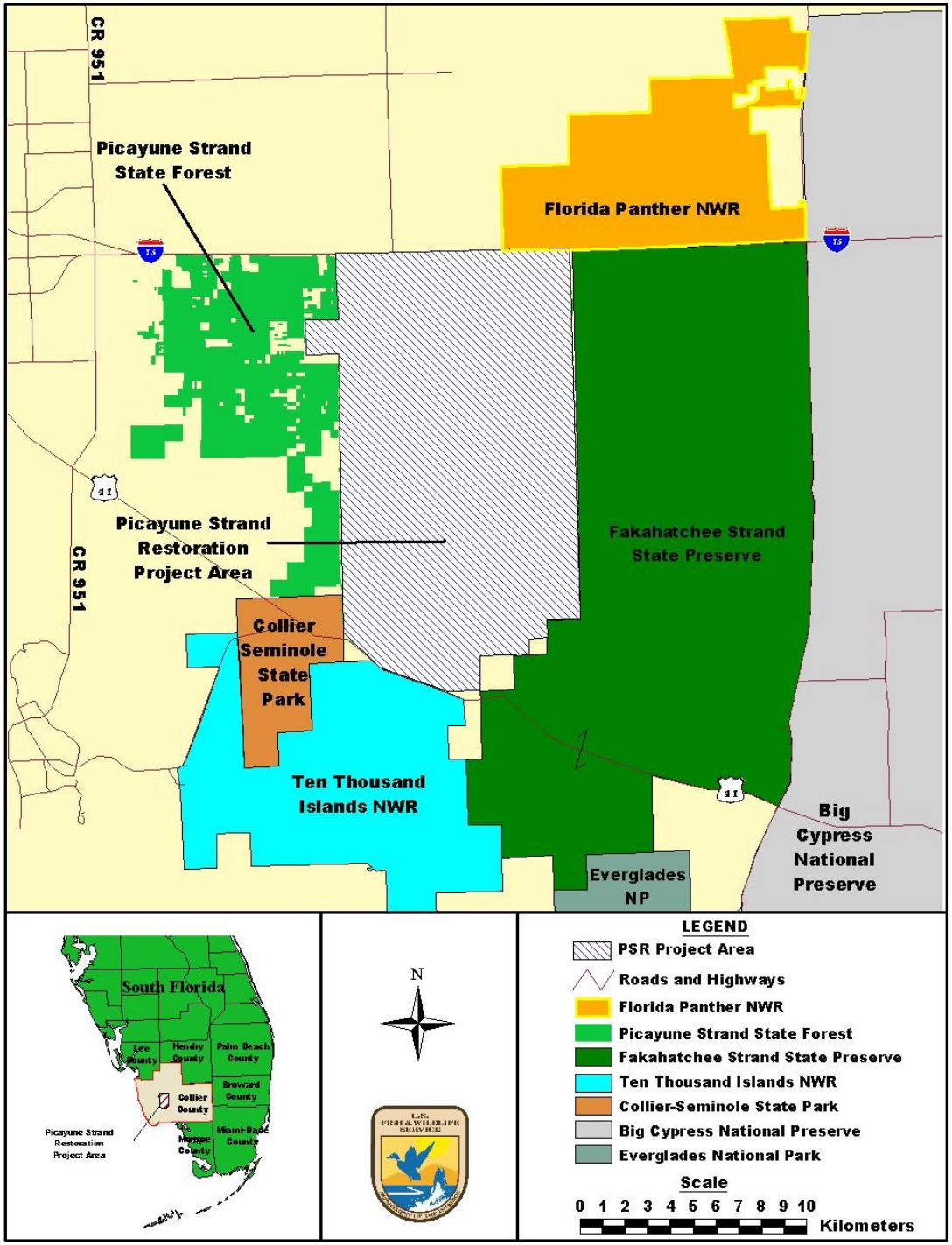
The Picayune Strand Restoration Project is a portion (55,000 acres) of the Picayune Strand State Forest (69,975 acres) managed by the Florida Division of Forestry and is located in Collier County, southwest Florida. This area adjoins the Big Cypress Preserve and has the highest concentration of unique plant and animal species in the state.

Picayune Strand Restoration Project (PSRP) History

- Picayune Strand and adjacent Fakahatchee Strand are the western component of the Big Cypress ecosystem characterized by a complex mosaic of cypress forest, wet pine forest (pine flatwoods), hardwood hammocks, wet prairies, and freshwater marsh draining into the salt marsh and mangrove forest of the estuaries and bays of the Ten Thousand Islands National Wildlife Refuge.
- Picayune Strand and Fakahatchee Strand were logged for cypress trees during the 1940s and 1950s.
- In the early 1960’s, Picayune Strand was drained and subdivided for the largest subdivision in the world.

PSRP History (continued)

- By the 1970’s, real estate development had failed because of high water levels during the summer wet season. Very few homes were actually constructed.
- The State of Florida began acquiring land in Picayune Strand in 1985. After 1998, federal funding from the Department of the Interior accelerated the land acquisition process. 98% of land acquisition is complete.
- The Picayune Strand State Forest was officially designated in 1995.
- The Florida Division of Forestry is the current land manager.



***IN COMBINATION WITH ADJACENT LANDS PICAYUNE STRAND RESTORATION PROJECT IS PART OF A CONTIGUOUS REGIONAL LANDSCAPE OF OVER 2.5 MILLION ACRES OF PUBLIC LANDS INCLUDING*:**

Florida Panther NWR

Ten Thousand Islands NWR

Fakahatchee Strand Preserve and Collier Seminole State Parks

Picayune Strand State Forest

Big Cypress National Preserve

PSRP Planning Background

- WRDA 1996 authorized projects critical to the restoration of the south Florida ecosystem; PSRP included.
- Central and South Florida Project Comprehensive Review Study (Restudy) of 1999 lead to:
- Comprehensive Everglades Restoration Plan (CERP); authorized in WRDA 2000.
- Picayune Strand Restoration Project was originally designated a “Critical Project,” but because of high cost became an “Other Project Element” of the Restudy.
- The South Florida Water Management District (SFWMD) included PSRP as one of eight “Acceler8” projects; and initiated filling of Prairie Canal and associated road removal.
- Chief’s Report signed in September 2005, Record of Decision signed in April 2007.
- Congress authorized PSRP construction in WRDA 2007.

Goals and Objectives of PSRP

- Restore 55,000 acres of cypress forest and associated wetland habitat.
- Restore inland hydrology: raise ground water table, restore sheet flow and return flow to strands.
- Restore estuarine hydrology: moderate the large salinity fluctuations caused by point discharge of Faka Union Canal; redistribute flow to adjacent tributaries.
- Enhance habitat for species of special concern, and threatened and endangered species.

Project Features

- Fill in 42 miles of canals (out of 48).
- Remove 260 miles of roads (out of 279).
- Construct 3 pump stations.
- Construct spreader canals.
- Remove and control invasive and exotic plant species.
- Reestablish natural fire regime.

Picayune Strand Restoration Project

Gulf America Corporation **built** 279 miles of road & 48 miles of canal.

PSRP will remove 260 miles of road & fill 42 miles of canal.

All water flows out of one canal into Faka Union Bay; PSRP will redistribute flow to adjacent estuaries.

Filling of Prairie Canal

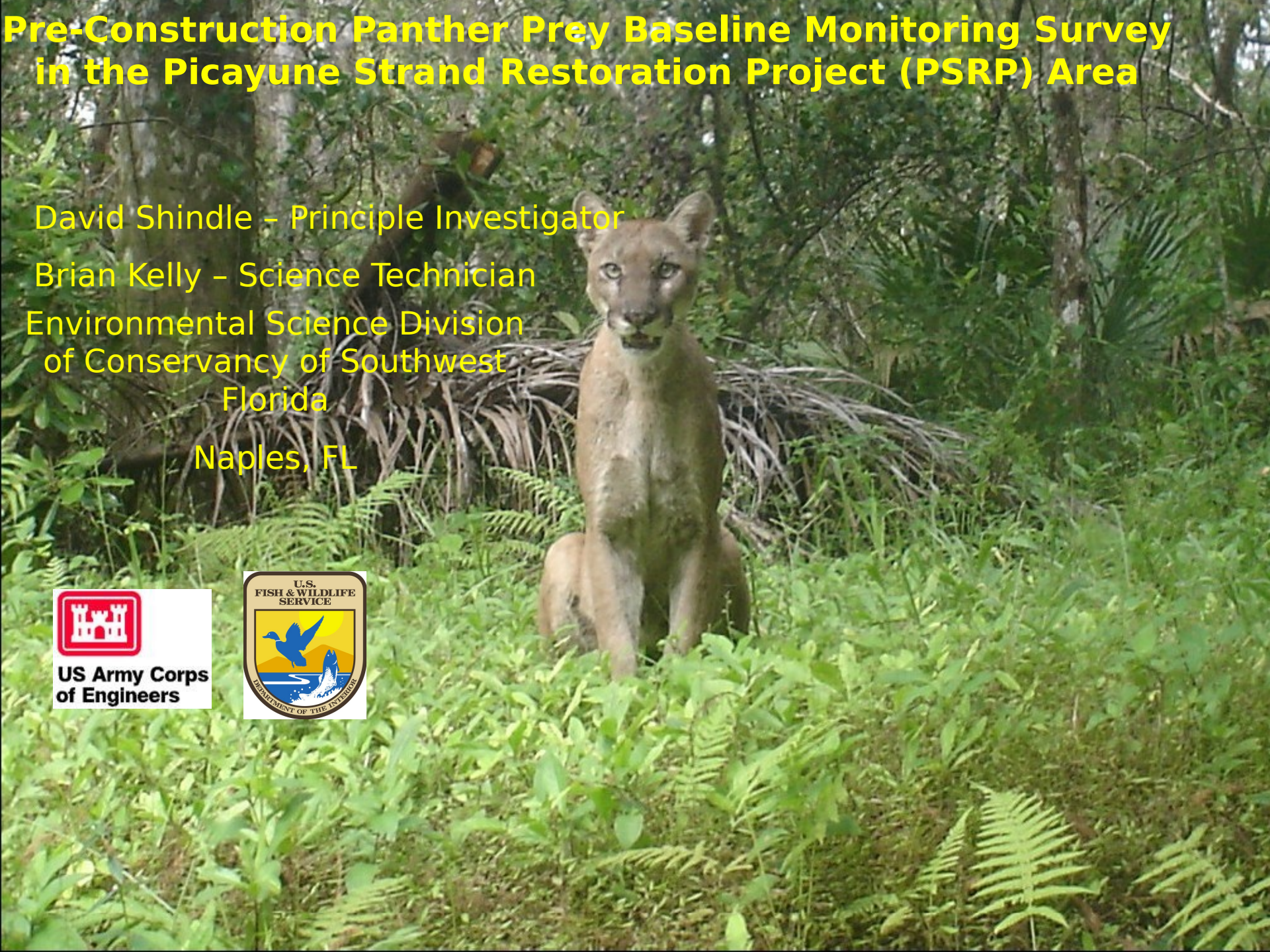
Monitoring & Adaptive Management Process

- Create performance measures and targets.
- Establish pre-construction baseline. For fish and wildlife, estimate population abundance and distribution.
- Monitor post-construction, and compare results with pre-construction baseline.
- Is project achieving desired ecosystem restoration benefits?
- Adaptive Management--change project operation or design if performance measure or target is not met.

Summary of Draft Monitoring Plan

- Hydrology
- Water Quality
- Vegetation
- Inland Fish & Wildlife
- Listed Species
  - Florida panther
  - Wood stork
  - West Indian (Florida) manatee
- Estuaries (population sampling, habitat mapping)
  - Oyster sampling
  - Crab (stenohaline & euryhaline) sampling on oyster reefs
  - Nekton sampling (fish, crabs, shrimp) with bottom trawls
  - Benthic habitat mapping with sonar

Pre-Construction Panther Prey Baseline Monitoring Survey in the Picayune Strand Restoration Project (PSRP) Area



David Shindle – Principle Investigator

Brian Kelly – Science Technician

Environmental Science Division
of Conservancy of Southwest
Florida

Naples, FL

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U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

WIHITE-TAILED DEER AND HOG ARE PRIMARY PREY ITEMS.
VERY FEW HOGS IN PSRP

Draft Performance Measures

Percent increase in Index of Relative Abundance (RAI) for panther prey

Minimum Numbers of panthers Known Alive (MKNA) – Includes Assessment of Panther Population as a Whole Outside of the PSRP Area

Panther/Prey Survey Methodology

(1) Opportunistic Sign Documentation

(2) Remote Camera Surveys:

- Panther prey (primarily white tailed deer) presence-absence and spatial distribution within the PSRP area.
- Index of relative abundance (RAI) for prey species based on daily photographic capture rates (Capture Rate = No. of captures/100 camera nights).
- Panther presence-absence and spatial distribution within the PSRP area.
- Minimum numbers of panthers known alive (MNKA).
- Panther RAI based on the daily photographic capture rates (Capture Rate = No. of captures/100 camera nights).

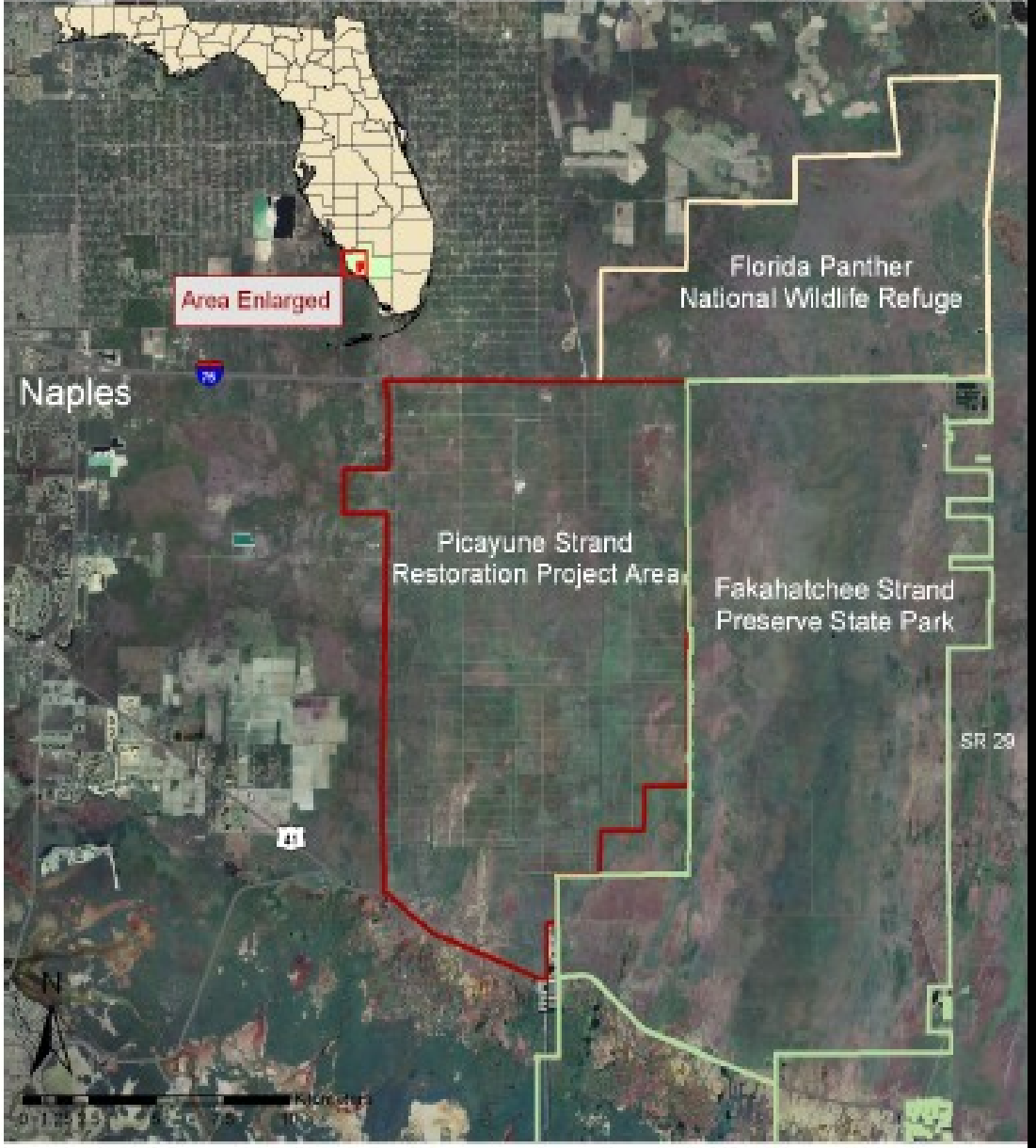


Figure 1. Location of the primary study area (Picayune Strand Restoration Project Area) in relation to reference study sites (Fakahatchee Strand Preserve State Park and Florida Panther National Wildlife Refuge) in Collier County, Florida.

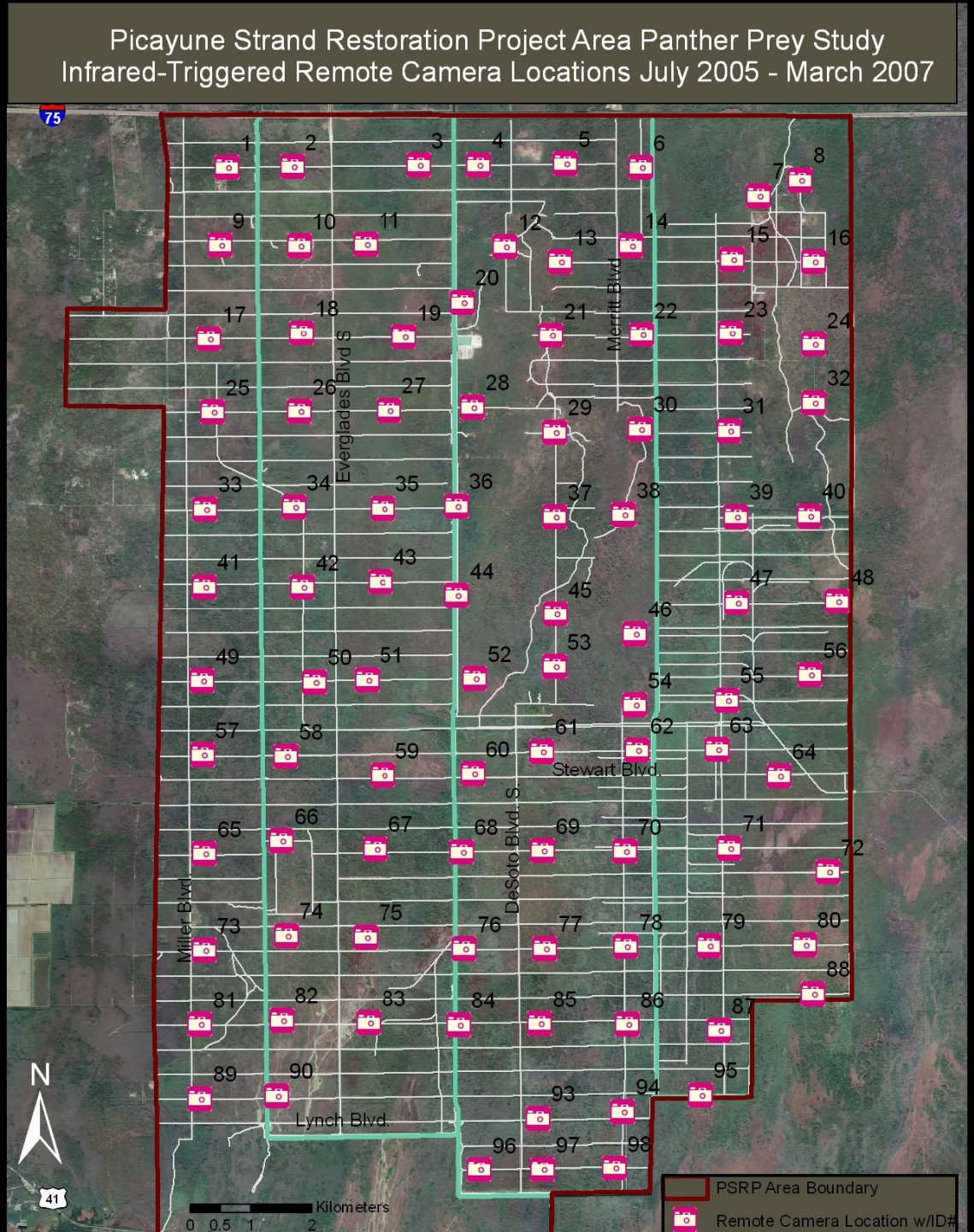
STUDY AREA

100 CAMERAS IN PSRP

REFERENCE SITES

10 CAMERAS IN FAKAHATCHEE STRAND PRESERVE STATE PARK

10 CAMERAS IN PANTHER NATIONAL WILDLIFE REFUGE


Picayune Strand Restoration Project Area Panther Prey Study
Infrared-Triggered Remote Camera Locations July 2005 - March 2007
75
Everglades Blvd S
Merritt Blvd
DeSoto Blvd S
Miller Blvd
Stewart Blvd.
Lynch Blvd.
41
N
Kilometers
0 0.5 1 2
PSRP Area Boundary
Remote Camera Location w/ID#

Camera Placement

Dave Shindle – Principle Researcher

FLORIDA BLACK BEAR

US Army Corps of Engineers

Panther/Prey Survey; Key Findings

- 16 month survey period during 2006 and 2007
- Identified 12 individual adult panthers (7 male, 5 female), plus 7 kittens using Picayune Strand during the survey period
- Identified 5 different family groups from at least 3 females during survey period
- On any given month, 2 to 7 adults and 0 to 5 kittens used Picayune Strand
- Family groups not known to den in Picayune Strand prior to survey

7 UNCOLORED ADULT CATS USED
PSRP DURING 16-MONTH STUDY

5 FAMILY GROUPS USED PSRP DURING 16-MONTH ST

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Key Takeaway Points

- The Corps can do wetlands ecosystem restoration!
- PSRP is one of the largest wetlands ecosystem restoration projects in the U.S., perhaps the world.
- PSRP is an outstanding example of federal and state agencies and local non-profit organizations working together.
- The Corps cannot do ecosystem restoration alone; but must cooperate with federal, state and local partners and stakeholders.
- Work with the federal, state and local agencies and non-profit organizations in your District’s area that have an interest in ecosystem restoration.
- For monitoring large mammals over a wide area, consider using photo-capture surveys as a monitoring tool.

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